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| 09 493,350 | 01 28 2000 | John Brewer | 696-250 | 2142 |

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EXAMINER

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| ART UNIT | PAPER NUMBER |
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1764

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DATE MAILED: 04 29 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/493,350

Applicant(s)

BREWER ET AL.

Examiner

Hien Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 26 February 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 8, it is unclear as to what structural limitation applicants are attempting to recite, e.g., since the elements in the claim, e.g. "means for independently control ..." and "means for controlling ... independently" are written in a "means-plus-function" format, it must be interpreted as corresponding structure described in the specification or the equivalents thereof consistent with 35 U.S.C. 112, sixth paragraph. *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ 1845, 1848 (Fed. Cir. 1994) (en banc). However, since the instant specification does not disclose adequate structures corresponding to each of the claimed elements and the equivalents for performing the recited functions, it is impossible to determine the structure of the claimed elements and the equivalents thereof, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on display in this or a foreign country or was known to the public in this or a foreign country prior to the date of the invention.

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4. Claims 1, 3, 5, 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Thompson (2,323,498).

With respect to claims 1, 8, 9, Thompson discloses a furnace comprising:

at least one fired radiant chamber, wherein the chamber is divided into at least two separate independent radiant zones 7, 7' by a dividing means 6;

at least one burner 13 in each zone 7, 7';

a convection chamber 8 in directed communication with the radiant chamber;

at least one process coil 9, 9', 10, 10' for each of the zones, wherein each coil extends through at least a portion of the convection chamber 8 and extends into one said zones 7, 7' before exiting said furnace;

a flue 18 for discharging flue gas located at the top of the convection chamber of the furnace; and

a means 17 for independently controlling the radiant burners 13 in each zone 7, 7' (Fig.

1).

With respect to claim 3, the two radiant zones have substantially the same area (Fig. 1).

With respect to claims 5, 10, referred to page 1, col. 2, lines 30-44.

Instant claims 1, 3, 5, 8-10 structurally read on the apparatus of Thompson.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the

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6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. The art area applicable to the instant invention is that of furnace.

One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with the desired product characteristics. *In re Clinton* 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

8. Claims 2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson (2,323,498).

With respect to claim 2, the apparatus of Thompson is substantially the same as that of the instant claims, but is silent as to whether there may be more than one radiant chamber.

However, it would have been obvious to one having ordinary skill in the art to provide more than one radiant chamber in the apparatus of Thompson since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

With respect to claim 4, it would have been obvious to one having ordinary skill in the art to select the size for the zones in the apparatus of Thompson on the basis of its suitability for the intended use as a matter of obvious design choice, absence showing any unexpected results and since it has been held that when the only difference between the prior art device and the claim was a recitation of relative size, and the device with the relative size would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In *Gardner v. TEC System, Inc.* 725 F.2d 1338, 220 USPQ 777.

9. Claims 6-7, 11-12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson (2,323,498) in view of Kushch et al (6,159,001 or 5,711,661).

The apparatus of Thompson is substantially the same as that of the instant claims, but fails to disclose the specific material of the dividing means as claimed.

However, Kushch et al disclose provision of using Nextel material in furnace art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to select an appropriate material, such as ceramic fiber, Nextel in the apparatus of Thompson, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice, absence showing any unexpected results. *In re Leshin*, 125 USPQ 416.

Response to Arguments

10. Applicant's arguments filed 2/26/02 have been fully considered but they are not persuasive.

Applicants argue that Thompson '498 does not disclose a furnace having a fired radiant chamber separated into at least two fired radiant zones. Such contention is not persuasive as the furnace of Thompson '498 does contain a chamber defined by the side walls 1, 1'. Said chamber is divided into two zones 7, and 7' by dividing wall 6 (see Fig. 1).

Applicants' argument with respect to the three components is unclear, where are the three components cited in the instant claims? In any event, the furnace of Thompson '498 does contain a chamber defined by the side walls 1, 1' and being divided into two zones 7, and 7' by dividing wall 6 (see Fig. 1), and therefore said furnace meets the "three components" of the instant invention.

Applicants argue that Thompson '498 does not disclose a separate and independent temperature control for each zone. Such contention is not persuasive as Thompson '498 discloses a separate burners 13 with separate ports 16 and plates 17 for controlling the amount of air admitted into the burners 13 (Fig. 1, page 2, lines 15-26). It should be noted that Thompson discloses that fuel and air are supplied to the furnace through the burner 13 and the firing ports 14 and since each burner has a separate ports 16 and plates 17, each burner is separately controlled.

Applicants argue that Thompson does not suggest to operate the furnace at different cracking conditions or to employ different feedstocks. Such contention is not persuasive as the language of the claims does not require any conditions or feedstocks.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is 308-4253. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode can be reached on 308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

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HT

April 26, 2002

Hien Tran

Hien Tran

Primary Examiner

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